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DRAFT  
ENVIRONMENTAL ANALYSIS  
FOR THE  
REALIGNMENT OF FORCES  
AT  
DAVIS-MONTHAN AIR FORCE BASE,  
ARIZONA

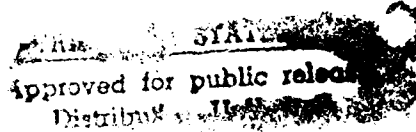


Prepared for:  
U.S. ARMY CORPS OF ENGINEERS  
LOS ANGELES DISTRICT

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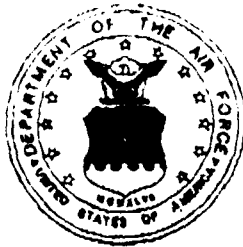


AUGUST 1989

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**DRAFT ENVIRONMENTAL ANALYSIS**  
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**Prepared for:**

**U.S. ARMY CORPS OF ENGINEERS**  
**LOS ANGELES DISTRICT**  
**300 North Los Angeles Street**  
**Los Angeles, CA 90012**

**Prepared by:**

**CHAMBERS GROUP, INC.**  
**1761-A East Garry Street**  
**Santa Ana, CA 92705**

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## SUMMARY

This Environmental Assessment (EA) addresses the environmental impacts associated with the realignment of forces at Davis-Monathan AFB, located in Tucson, Arizona. Under Congressional mandate, the 27th Tactical Air Support Squadron including 14 OV-10 aircraft and 226 personnel will be relocated from George AFB in California to Davis-Monathan in FY 90/93. In addition, the 41st Electronic Combat Squadron (ECS) composed of nine EC-130H combat support coded aircraft and 1,006 personnel, as well as a drawdown of 10 PAA A-10A training coded aircraft and a total of an additional 52 operations and maintenance personnel will be moved from Davis-Monathan to Bergstrom AFB, Texas in FY 90/92.

Alternatives considered included the No Action alternative involving no changes in aircraft or manpower. The second alternative included the option of retention of the 41 ECS and the addition of the 27th TASS which would result in some crowding on the base. Neither of these alternatives are consistent with the Congressional Mandate. A third alternative include the use of new facilities for the 27th TASS which would result in inefficiencies in operations and was not considered feasible.

The impact assessment addressed the issues of land use, noise, air quality, geology/seismicity, hydrology/water resources, biology, cultural resources, socioeconomics and public safety. In general, due to the slight reduction in aircraft (reduced by 4) and in aircraft flight operations (from a daily average of 211.3 to 206.1) no impacts were identified. In addition, while the reduction of 832 base personnel represents a 12 percent reduction in base personnel, this only represents 0.4 percent of the secondary job market workforce in Pima County and was not considered significant. A similar effect on the housing market of less than 0.3 percent was also not considered significant. The proposed action has no effect on the other environmental issues listed above.

A Finding of No Significant Impact (FONSI) has been prepared for this action.



## DRAFT

# ENVIRONMENTAL ANALYSIS FOR THE REALIGNMENT OF FORCES AT DAVIS-MONTHAN AIR FORCE BASE, ARIZONA

## SECTION 1 - PROPOSED ACTION

### 1.1 PROJECT LOCATION

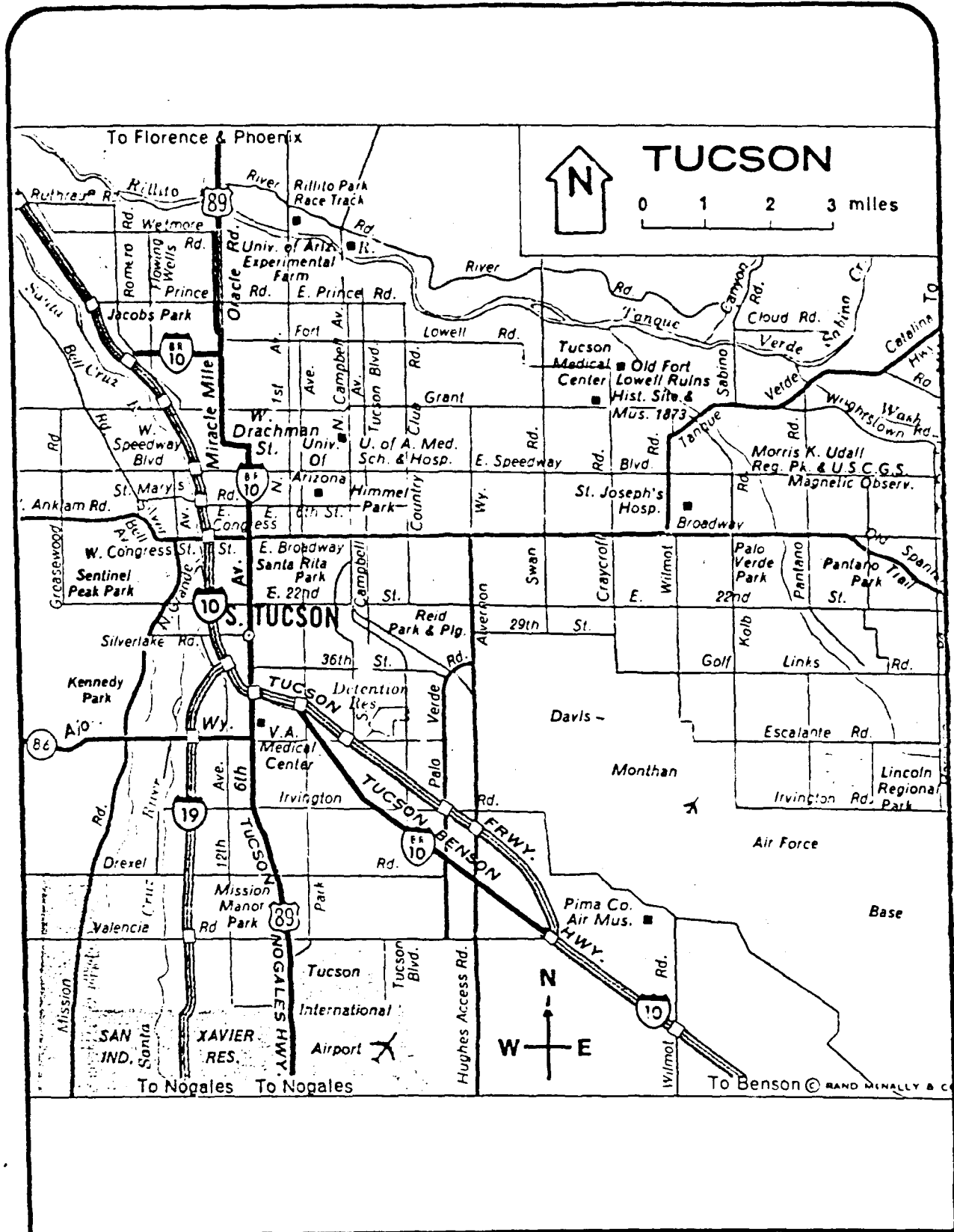
Davis-Monthan Air Force Base, (AFB) is located adjacent to the city of Tucson, in Pima County, Arizona (vicinity map, Figure 1.1-1) and northeast of the Tucson International Airport. The 10,763-acre facility is a Tactical Air Command (TAC) base which has been in operation since 1927. The major missions of the base include close air support training for active duty pilots in the A-10 under the 355 Tactical Training Wing; the 602nd Tactical Air Control Wing, which maintains a ready tactical air control system capable of providing directions to air elements and close air support to ground forces, and the 868th Tactical Missile Training Group, responsible for training Air Force members to operate, maintain, and defend the Ground Launched Cruise Missile weapons system. Other commands are also represented on the base. The center has programs oriented towards various levels of training for specific aircraft. These training programs range from refresher courses to six-month extended programs for personnel who are new to the particular aircraft.

The base airstrip is in a northwest to southeast orientation which parallels the Tucson International Airport. Residential areas abut the north and west sides of Davis-Monthan AFB and are within the Tucson City limits. Unincorporated areas of the County of Pima are on the south and east sides of the base.

### 1.2 PROJECT PURPOSE

Under recent Congressional action, several military bases have been proposed to be closed. Due to this action, a realignment of air support and manpower will be shifted between Davis-Monthan AFB and other bases.

The EA addresses the environmental impacts associated with the realignment of forces at Davis-Monthan AFB. The EA identifies and examines the realignment of flight operations and associated impacts. Major impacts of concern include noise, air quality and the socioeconomic impacts of decreasing manpower on the AFB as well as on the local community.



VICINITY MAP

FIGURE

1.1-1

### 1.3 PROJECT DESCRIPTION

The proposed action includes the shifting of aircraft and manpower from George AFB in California to Davis-Monthan AFB, and a shift of aircraft and manpower from Davis-Monthan AFB to Bergstrom AFB in Texas. Specifics of the action are described below and shown in tabular fashion in Tables 1.3-1 and 1.3-2.

- o Relocation of the 27th Tactical Air Support Squadron (27 TASS) to Davis-Monthan from George AFB in FY 90/3. This includes relocation of 14 OV-10A combat coded aircraft (12 from air force, 2 from marines). Presently there are 14 OV-10A aircraft on base. This additional 14 aircraft will bring the total OV-10As to 28.

Manpower being relocated from the 27 TASS includes a total of 226 additional personnel to Davis-Monthan AFB.

- o Relocation of the 41st Electronic Combat Squadron (41 ECS) from Davis-Monthan AFB to Bergstrom AFB, Texas in FY 90/92. This includes the transfer of 9 EC-130H combat support coded aircraft and 1,006 operations, maintenance and base operating support personnel.
- o Relocation of DET 2, Tactical Air Control Wing (TAWC) combat support personnel from Davis-Monthan AFB to Bergstrom AFB, Texas in FY 90/92. The manpower to be relocated to Bergstrom includes totals 10.
- o Additionally, the program force structure change draws down 10 PAA A-10A training coded aircraft in the 355 Tactical Training Wing (355 TTW) at Davis-Monthan AFB in FY 90/92, with a corresponding decrease in 42 personnel.

As a result of the proposed action, some relocation of facilities on the base will occur. Figure 1.3-1 shows the current facilities and land use at the base. The U.S. Customs Service presently utilizes several buildings in the northwest portion of the base in the vicinity of the A-10 parking. These customs facilities will relocate to the southeast and take over the facilities of the present 41 ECS (EC-130Hs) when the 41 ECS is moved off base. The 602nd unit headquarters building, which has responsibility for the 27 TASS, is presently located near the southeast portion of the developed base area and will move into the current customs area. The latter will allow for the 602nd headquarters to be adjacent to the OA-10 and OV-10 aircraft. The additional OV-10s will be placed in the same area as the existing OV-10s.

Construction activity associated with the proposed realignment will be limited to the refurbishing and remodeling of existing structures to better suit the needs of the groups being relocated. Personnel transferred to Davis-Monthan will either be accommodated in existing base housing and/o. live off base. No

Table 1.3-1

## AIRCRAFT RELOCATION ACTION

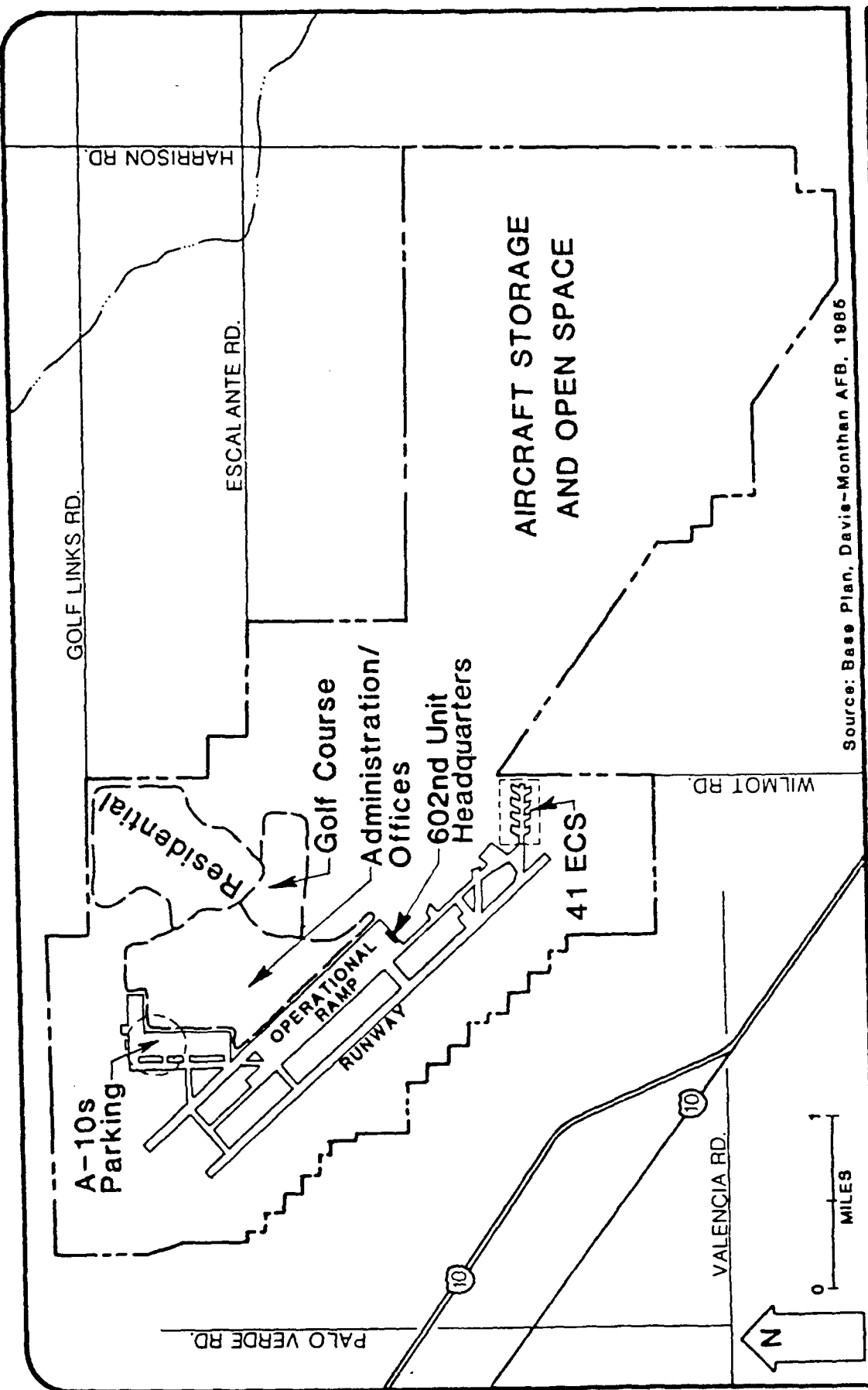
<u>Existing Aircraft</u>	<u>Aircraft After Relocation</u>	<u>Change</u>
74 - A-10s	64 - A-10s	-10
24 - OA-10s	24 - OA-10s	0
14 - OV-10s	28 - OV-10s	+14
8 - EC-130H	0 - EC-130H	-8
<b>Total</b> 96	92	-4

Table 1.3-2

## MANPOWER RELOCATION ACTION

<u>Unit</u>	<u>Type</u>	<u>Officer</u>	<u>Enlisted</u>	<u>Civilian</u>	<u>Total</u>
27 TASS	OPS	31	19	0	50
	MNT	0	149	0	149
	BOS	1	19	7	27
	TOT	32	187	7	226
41 ECS	OPS	-96	-330	-3	-429
	MNT	-10	-444	-4	-458
	BOS	-4	-84	-31	-119
	TOT	-110	-858	-38	-1006
DET 2, TAWC	OPS	-4	-4	-1	-9
	MNT	0	0	0	0
	BOS	0	-1	0	-1
	TOT	-4	-5	-1	-10
355 TTW	OPS	0	0	0	0
	MNT	0	-37	0	-37
	BOS	0	-4	-1	-5
	TOT	0	-41	-1	-42

6132-8/89



Source: Base Plan, Davis-Monthan AFB, 1985

FIGURE

1.3-1

## EXISTING FACILITIES AND LAND USE

construction of new buildings or other major construction is a part of the proposed action.

#### 1.4 CONSIDERATION OF ALTERNATIVES

Several alternatives were considered during the preparation of this assessment. These alternatives are described below.

##### 1.4.1 No Action Alternative

This action would involve no realignment of activities at Davis-Monthan AFB. No changes in the current environmental conditions will occur. There would not be any decrease in personnel.

Implementation of this alternative was not considered feasible since it would be in direct contradiction to the Congressional Mandate to realign the activities at Davis-Monthan.

##### 1.4.2 Retention of 41 ECS and Addition of 27 TASS to Davis-Monthan AFB

This alternative would keep the current operations of 41 ECS and of the 27 TASS. This alternative would slightly increase noise levels associated with aircraft operations and would result in overcrowding of some base facilities associated with aircraft operations. This alternative would also not be consistent with the mandate of Congress.

##### 1.4.3 Use of Alternative Facilities for 27 TASS

This alternative would involve use of new or other facilities to house the 27 TASS. This alternative would require construction of new facilities with its resultant impacts or would result in considerable inefficiencies since operations could be scattered in two or more locations on the base.

## SECTION 2 - AFFECTED ENVIRONMENT

### 2.1 LAND USE

#### 2.1.1 Davis-Monthan AFB and Surrounding Land Uses

The land uses within the Davis-Monthan AFB are various, ranging from aircraft landing strips to storage of aircraft in the 2,300-acre Aerospace Maintenance and Regeneration Center (AMARC) and 836 Air Division Hospital to U.S. Customs Service Air Operations Branch. Located off of Craycroft Road, the base also has an area of military housing plus associated facilities such as schools, laundries, a bicycle shop, and basic shopping. Also located in this general area are most of the administrative and office buildings. A layout of the facility was previously shown in Figure 1.3-1.

Land uses in the vicinity surrounding the base range from the City of Tucson urban environment on the north to open space on the south. Land uses are shown in Figure 2.1-1. Within the Tucson City limits the land use is mainly residential from very low densities on the northeast side to high densities west of the base, with supporting activities, i.e., educational, commercial, and industrial. In the county area the land is basically rural and undeveloped.

#### 2.1.2 Land Use Policies

There are a wide range of land use policies regarding the area surrounding the base and these are summarized below.

##### 2.1.2.1 AICUZ Policies

In August of 1975, Davis-Monthan AFB published an Air Installation Compatible Use Zone (AICUZ) report. This report has as it's objective to promote orderly and compatible use of the land around Davis-Monthan AFB. This is accomplished through the examination and evaluation of the effects of aircraft noise and accident potential and through development of planning mechanisms which help to insure that the health, safety, and welfare of the citizens of the surrounding communities and the operational capabilities of Davis-Monthan AFB are protected.

AICUZ land use guidelines are based on the most recent land use technology. Data from AICUZ are incorporated into existing land use plans and ordinances of the local communities and serves as a basis for approval or disapproval of future development requests.



2.1-1

LAND USE SURROUNDING DAVIS-MONTHAN AFB



The conclusions and recommendations of this report are as follows:

- o An analysis of existing and proposed land uses within the Davis-Monthan AICUZ indicates that the primary concern is with existing land uses off the northwest end of the runway and the future land uses surrounding the other boundaries of the base, primarily the southeast.
- o There is significant impact upon the City of Tucson from Davis-Monthan AFB operations. Encroachment of Davis-Monthan AFB is nearing a critical stage; however, in order to insure the public health, safety, peace, comfort, convenience, and general welfare within the airfield environs, and to prevent the impairment of the airfield, it is necessary to guide, control, and regulate future growth and development.

With a greater emphasis on compatible land uses, and with noise attenuation measures for new construction, future compatibility problems may be avoided.

- o Of the possible land use conflicts with aircraft operations, residential and commercial incompatibilities are the most predominant. Although it is possible to establish general guidelines, land use proposals should be fully evaluated, preferably on a case-by-case basis.
- o The existing flight patterns for the assigned mission represent an optimum situation in terms of minimal land use impacts. Further modifications could result in safety hazards or mission degradation.
- o Although the Day/Night Average Sound Level (Ldn) maps differ substantially from those prepared by the Composite Noise Rating (CNR) methodology, the Ldn procedure more accurately defines the noise environment. Local jurisdictions in the Davis-Monthan AFB environs should review their building codes and, where necessary, incorporate sound attenuation requirements for the areas within the access boundary.
- o Changes in the approved Pima County Comprehensive Plan reflect an awareness of aircraft/land use relationships.

Since the release of this document, the Davis-Monthan Air Force personnel have been working closely with the county and local communities in developing plans for the area (G. Patriarca, personal communication, 1989).

#### 2.1.2.2 Saguaro National Monument

The Saguaro National Monument is approximately five miles to the east of the base. Of the 63,000 total acres, 58,000 are congressionally mandated Class I wilderness. The only land use

policy of the monument regarding Davis-Monthan AFB is a FAA regulation that prohibits flying lower than 2,000 above the ground (Mr. Hall, personal communication, 1989).

#### 2.1.2.3 State Land Department, State of Arizona

The State of Arizona is one of the major land owners in Pima County (approximately 50 percent). Most of this land has been identified by the State Land Department to be potentially suitable for future urban development. The executive summary of the Urban Lands Management Act defining the purpose and methods for development of these lands is in Appendix A. It was prepared by the State Land Department. Basically, the Act provides an outline of steps to involve local and general planning agencies in the process of disposing of the lands so as to maximize the revenues provided to the state from these lands.

Pima County has the stated land use policy that:

Building heights and land uses within the environs of airports shall be regulated so as to prevent encroachment of incompatible uses and structures. Adverse impacts from airports upon adjacent land uses will be mitigated. Concentrations of population under airport approach zones will be avoided. Impacts of aircraft on noise-sensitive uses will be minimized. Uses within the designated airport environs districts will conform to all applicable provision of airport overlay zones (Pima County Comprehensive Plan, 1989).

#### 2.1.2.4 Tucson General Plan

The Tucson General Plan has the stated policy that states that

local governments shall coordinate land use planning efforts with Federal authorities to ensure that proposed developments are compatible with adjacent National Defense facilities (City of Tucson General Plan, 1989).

The City's General Plan is an overall development guide to land use but specific plans have been prepared by certain areas and neighborhoods. These are approved by the mayor and city council, then incorporated into the general plan. Appendix A contains these neighborhood and area policies regarding Davis-Monthan AFB.

## 2.2 NOISE

The existing noise levels are defined by the Air Installation Compatible Use Zone (AICUZ) Day-Night (Ldn) Noise Contours. Ldn levels at 1,000 feet from the end of the runway are 72.1 and 75.2 for North runway 30 and South runway 12, respectively.

Davis-Monthan AFB has as its primary mission, pilot training. The flight paths of aircraft consist of six basic types including; straight-out departure, straight-in arrival, modified straight-in arrival, IFR or radar pattern, overhead landing, and re-entry VFR pattern. The practice of these six basic types translates into 32 actual tracks. The aircraft mix, based on the June 1989 Operations Log is presented in Table 2.2-1.

Table 2.2-1

JUNE 1989 DAILY OPERATIONS LOG BY AIRCRAFT TYPE

<u>Aircraft Type</u>	<u>Percentage</u>	<u>Number per Day</u>
A-10	64.9	137.0
OV-10	8.9	18.9
C-130	2.5	5.2
All Others	23.7	50.2
<b>TOTAL</b>	<b>100.0</b>	<b>211.3</b>

The A-10s, OV10 and C-130 aircraft operate 77 percent of the time on Runway 30, and 23 percent of the time on Runway 12. The other aircraft have a slightly higher percent of operations on Runway 30 and slightly less on Runway 12. The aircraft have 95 percent of operations during the day (7:00 A.M. to 7:00 P.M.) and five (5) percent at night (10:00 P.M. to 7:00 A.M.). All other aircraft have approximately 87 percent daytime operations.

Operations are coordinated with FAA, and flight paths are integrated to minimize conflict with civilian aircraft operations at Tucson International Airport and other private flying activities. Efforts are continually expended to control and schedule missions to keep noise levels to an absolute minimum especially during nocturnal periods. Primary consideration of community disturbances and public reactions have been used in the selection of flight corridors.

## 2.3 AIR QUALITY

### 2.3.1 Climate

The Tucson Basin region, within which Davis-Monthan AFB is located, is characterized by a long, hot season, beginning in April and ending in October. Temperatures above 90 degrees F are the rule from May through September. Though temperatures frequently exceeding 100 degrees are recorded between June and July, climate conditions due to the relative humidity are not as uncomfortable as high temperatures might make it appear. Under

usual conditions, the diurnal temperature varies between 30 degrees to 40 degrees. Table 2.3-1 shows average Tucson weather data from long-term climatic records.

Clear skies or very thin cloud cover allows intense surface heating during the day and active radiational cooling at night, enhanced by the atmospheric dryness. The average growing season in Tucson is approximately 250 days.

Fifty percent of the annual precipitation falls between July 1 and September 15 and a secondary maximum from December through March providing 20 percent of the yearly precipitation. Scattered convective or orographic showers and thunderstorms during July-September often fill dry washes to overflowing. Occasionally, brief, torrential downpours cause destructive flash floods in certain parts of the metropolitan area. Hail is rare. Precipitation in December is more general and occurs as prolonged rainstorms, snow fall, though infrequent in Tucson, can exceed an inch in depth.

Relative humidity varies in accordance with the usually large daily range in temperature. During the summer, particularly July through September, relative humidity is occasionally high enough to cause physical discomfort.

Surface winds are generally light with no major variations either in velocities or prevailing direction, though occasional windstorms cause localized duststorms. Wind directions respond sharply to the steering mechanism of the Santa Cruz Valley. Daytime winds, especially in summer, are upvalley from the NW. Nocturnal winds, especially in winter, are from the SE. During the day, most of Tucson is thus upwind of the base. At night, especially in winter, the base is upwind of the rest of Tucson.

Visibility values are normally high. Dust and haze of local origin, though frequently visible, do not impair the general clarity of the atmosphere for extended periods of time.

### 2.3.2 Air Quality

Davis-Monthan AFB is located within the Tucson Air Planning Area (TAPA). The Pima County Air Quality Control District (AQCD) maintains and operates an extensive system of monitors for various pollutants. Monitoring stations are located near the air base. The monitoring station near 22nd and Craycroft (1237 South Beverly) is the closest to Davis-Monthan and measures the full spectrum of gaseous air pollutants. The nearest particulate monitoring data resources is near Broadway and Swan (4575 East Broadway). Figure 2.3-1 shows the AQCD monitoring network location within Tucson APA.

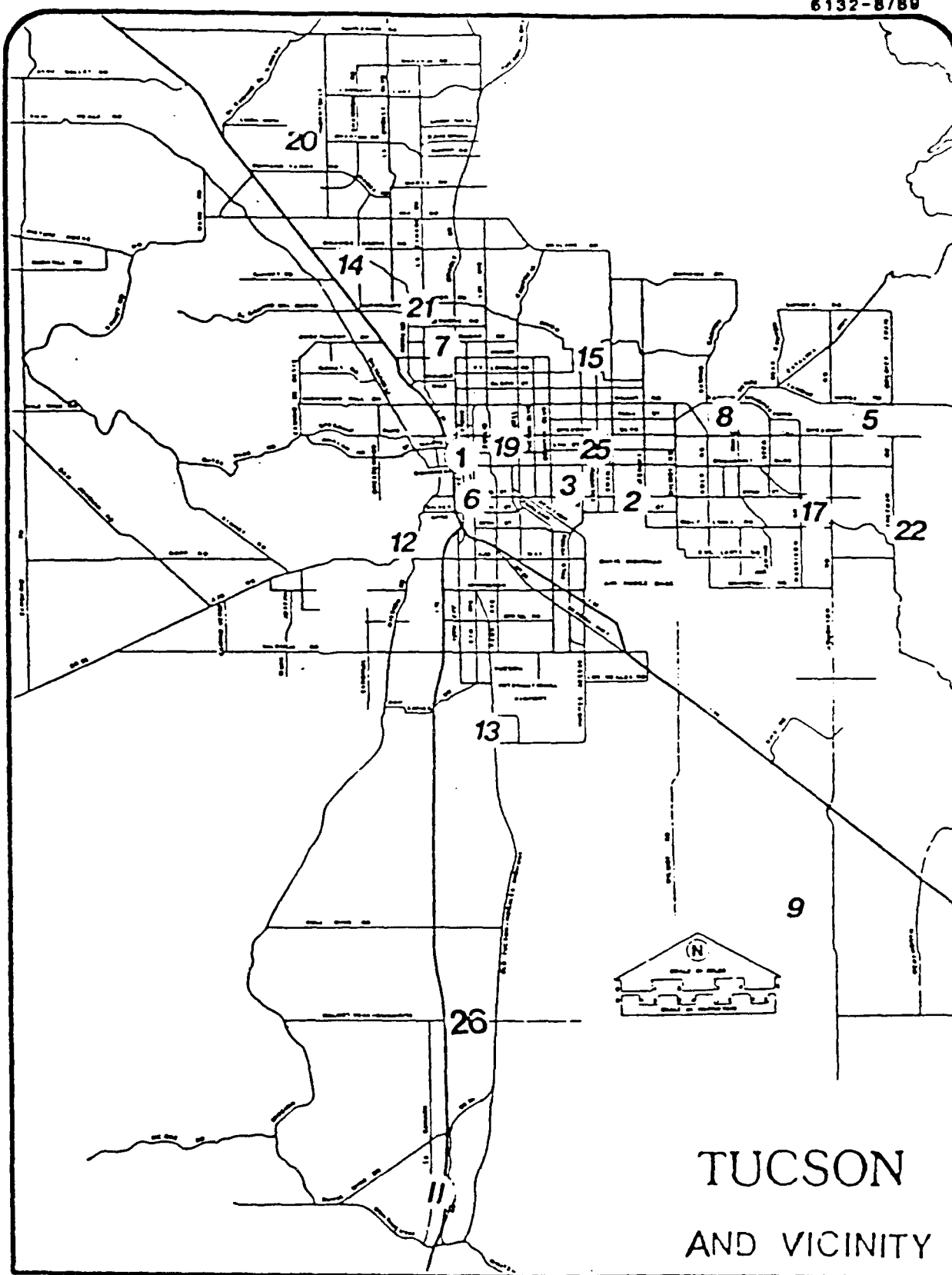
Table 2.3-2 summarizes the most recent air quality data representative of the air base. This summary is based on data

Table 2.3-1  
CLIMATIC SUMMARY

<u>Month</u>	<u>Average Temp (degrees F)</u>			<u>Average</u>
	<u>Mean</u>	<u>Max</u>	<u>Min</u>	<u>Precipitation</u> <u>(in.)</u>
January	50.4	64.3	36.4	0.83
February	53.3	67.6	38.9	0.81
March	57.7	72.8	42.6	0.73
April	64.5	80.7	48.3	0.35
May	72.6	89.3	55.8	0.19
June	82.1	98.8	65.4	0.26
July	86.0	99.1	72.9	2.24
August	84.0	96.6	71.3	2.09
September	80.0	94.0	66.0	1.30
October	69.4	84.8	54.0	0.63
November	58.3	73.2	43.3	0.76
December	51.4	65.3	37.4	1.01
Annual	67.5	82.2	52.7	11.20

Average Total Snow Fall: 1.3 inches

Source: U.S. Department of Commerce, 1982.



AQCD MONITORING LOCATIONS

FIGURE  
2.3-1

Table 2.3-2

## DAVIS-MONTHAN AFB AMBIENT AIR QUALITY SUMMARY

		<u>Standard</u>	<u>Violations</u>	<u>Maximum</u>
Ozone ppm	-- 1-Hour	0.12 ppm	0	0.106
Carbon Monoxide	-- 1-Hour	35 ppm	0	12.2 ppm
	-- 8-Hour	9 ppm	0	5.4 ppm
Nitrogen Dioxide ppm	-- Annual	0.05 ppm	NO	0.016
Sulfur Dioxide ppm	-- Annual	0.03 ppm	NO	0.005
	-- 24-Hour	0.14 ppm	0	0.025
ppm	-- 3-Hour	0.50 ppm	0	0.09
ppm				
Particulates ug/m3	-- Annual	75 ug/m3	YES	76
	-- 24-Hour	260 ug/m3	0	216
ug/m3				

Source: Pima County AQCD, 22nd/Craycroft Station (Particulate data from Broadway/Swan)

(Note: Needs updating, awaiting current data.)

reported in the "Annual Data Summary -- Air Quality in Tucson, Arizona 1987". The following conclusions can be drawn concerning the air quality levels at the site. First, the site experiences levels of all-criteria-pollutants which are all below the National Ambient Air Quality Standards (NAAQS) for gaseous pollutants.

Ozone levels are relatively close to the allowable hourly level, while carbon monoxide (CO) and nitrogen oxides (Nox) are well within healthful standards. In contrast to generally good gaseous air quality, particulate levels do exceed NAAQS. Total suspended particulates (TSP) have often exceeded clean air standards in many areas of Tucson. Data on the new (1987) standard for inhalable, 10-micron diameter particulate matter (PM-10) are still sporadic, but they also suggest possible occasional violations of the PM-10 standard in some areas of Tucson. The Tucson airshed is, therefore, designated as a non-attainment area for particulates. CO levels have also exceeded state and federal 8-hour standard, but such violations are highly localized and have been very infrequent within the last few years.

## 2.4 GEOLOGY/SEISMICITY

### 2.4.1 Geological Resources

Davis-Monthan AFB is situated along with the City of Tucson in the Tucson Basin, a basin bordered by the Santa Catalina, Rincon, Santa Rita, Tucson, Sierrita, Tortilita, and Empire Mountains and Black Mountain. The Tucson Basin typifies the physiography of the Basin and Range Province in which north to northwest-trending mountain ranges are separated by desert valleys. The elevation of the ground surface in the base vicinity is between 2,500 and 2,900 feet above mean sea level (MSL) and decreases toward the northwest.

The mountains north, south, and east of the basin are composed of massive metamorphic and intrusive igneous rocks characterized by low porosity and permeability. Mountains to the west consist of igneous, sedimentary and metamorphic rocks. The oldest rocks are Precambrian (more than 600 million years old), and the youngest are Tertiary (60 million years old).

The Tucson Basin is a structural basin filled with alluvium eroded from the surrounding mountains and deposited by streams and wind in lacustrine and playa environs. The sediments consist of granite, granite-gneiss, schist, andesite, basalt, and limestone and are generally unconsolidated. Grain sizes range from clay to boulders. The deposits range in thickness from a thin veneer at the edge of the basin to more than 12,000 feet near the center of the basin.



Davis-Monthan AFB lies on what is known as a bajada; a nearly flat surface of confluent alluvial fans which constitute the piedmont slopes of a basin. The bajada topsoil is composed of silts, clays, sands, and gravels which average about 24 inches in depth. Subsoils consist of rock, clay, and caliche soils.

#### 2.4.2 Seismicity

The Tucson Basin lies within the Cordilleran foldbelt, a predominantly north-south trending zone of tectonic, seismic, and volcanic activity associated with mountain building. The Tucson Basin is also situated in the Texas shear zone, a northwest trending fault zone which has been active more recently (approximately 60 million years ago) than the Cordilleran foldbelt. Movement along the ancient faults ceased during the Tertiary period, approximately 13 million years ago.

Southeastern Arizona is subject to sporadic seismic activity. Seismic events with the potential of causing surface rupture in the vicinity of Tucson Basin have a recurrence interval on the order of 100,000 years. Surface rupture dating from 15,000 to 30,000 years ago is recorded in southeastern Arizona. The recurrence interval of these events is 3,000 to 3,500 years and the estimated Richter magnitude is 6.6 to 7.2 or approximately, an intensity of VIII to X on the modified Mercalli scale. During the past 154 years, there have been only two known events with intensities of VII or greater within a 50-mile radius of Tucson.

#### 2.5 HYDROLOGY/WATER RESOURCES

The Tucson Basin comprises 1,000 square miles in the upper Santa Cruz River drainage basin. The sediments beneath Davis-Monthan AFB generally behave as a single, unconfined aquifer. However, locally confined conditions may occur due to the presence of discontinuous layers of low permeability materials. The deepest unit is the Pantano Formation. The others, in ascending order, are the Tinaja beds, the Fort Lowell Formation, and surficial and stream channel deposits. Surficial deposits consist primarily of gravel and gravelly sand. These deposits generally range from a few feet to several tens of feet thick. Generally, these deposits are above the water table and are not considered as part of the regional aquifer.

The depth to water in the Tucson Basin ranges from less than 15 to greater than 550 feet. The groundwater gradient slopes toward the north-northwest at 10 to 20 feet per mile in the center of the basin and 20 to 30 feet per mile in southern and northwestern regions of the basin.

The main sources of recharge to the basin aquifer are precipitation that infiltrates through ephemeral stream channels, inflow of groundwater from the south and north, and infiltration

of runoff from surrounding mountains. Lesser amounts of recharge are supplied by infiltration of excess irrigation water and sewage effluent discharged into the Santa Cruz River channel. Precipitation on the basin floor provides negligible recharge because most of it falls during the hottest part of the year and evaporates. Groundwater is discharged from the basin primarily by pumping and outflow in the northwestern portion of the basin. The rate of discharge currently exceeds the recharge rate, resulting in continually declining groundwater levels.

The Tucson Basin has been designated as part of the Tucson Active Management Area by the Arizona Department of Water Resources. This designation provides for specific groundwater management in order to bring the basin into safe yield by 2025. The aquifer underlying the Tucson Basin has also been designated as a sole source aquifer under the Safe Drinking Water Act. The designation gives the U.S. EPA the authority to veto projects involving federal funding that may contaminate or deplete groundwater in the aquifer.

Ephemeral washes drain all of Davis-Monthan AFB except the far east section. In the east, a minor tributary of Pantano Wash, known as Attebury Wash, cuts through an undeveloped section of the base, and flows generally to the northwest. Its main channel is slightly entrenched, lying about 50 cm to one meter below the surrounding ground surface.

## 2.6 BIOLOGY

### 2.6.1 Vegetation

The vegetation at Davis-Monthan AFB once consisted of creosote scrub, mesquite and cholla scrub, and desert riparian habitat. The areas proposed for relocation of forces between buildings and for the location of additional aircraft associated with the proposed realignment are all located on previously developed land with structures and associated landscaping. No native vegetation exists in the area.

### 2.6.2 Wildlife

The areas affected by the proposed realignment activity are located within the urban areas of the base. Wildlife in the area is restricted to those species that are adapted to urban environments.

### 2.6.3 Threatened, Endangered and Candidate Species

No threatened, endangered or candidate species of plant or wildlife are expected to occur within the portion of the base where realignment activities will occur.

## 2.7 CULTURAL RESOURCES

A comprehensive survey of cultural resources was conducted in 1988 (Altschul, 1988). The goal of the survey was to provide the Air Force with information on the location and significance of cultural resources which can be considered for planning purposes. The document presents results of surveyed areas which represent about 45 percent of the total developed area at the air base and 65 percent of all non-developed land at the air base. Eight sites and 139 non-sites and isolated occurrences were recorded during the survey. Cultural resources ranged in age from the Late Archaic through the Protohistoric Periods, although most date to the Formative Period. Models of non-riverine subsistence practices were developed and evaluated against the data. Six sites were considered eligible for inclusion in the National Register of Historic Places. Testing and data recovery plans for these six sites were presented. No further survey work was recommended.

The survey included the western strip of the runway, an area encompassing 1,180 acres. Approximately 100 acres of the north central portion (approximately 2,000 feet south of the north end of the runway) of the parcel was previously used as a landfill. Much of this area has been disturbed and cleared. An artificial ridge was built parallel to the entire length of the runway and obscures about a 30-meter swath. The only area that was spared major disturbance is in the southern portion of the strip. Creosote bush dominates the vegetation which also includes prickly pear, cholla, and paloverde.

In the immediate vicinity of the landing strip, 34 non-sites and isolated artifact locations were recorded. Most of these resources were concentrated immediately northwest of the former landfill. This entire area has been repeatedly bulldozed. The presence of artifacts may indicate that a site once existed in the area. Given the dispersed nature of the artifacts and the condition of the area, it is doubtful that subsurface deposits still exist and that the present location of surface deposits bears any direct correlation with the original location of the deposits.

Twenty artifacts were found at 11 locations in the southern portion of the runway also along its west side. Six of the non-site and isolates were distributed along an ephemeral stream that cut through this area. The remaining five resources were found in disturbed areas, mostly in the extreme southeast area.

None of these artifacts found along the runway could be securely dated. The ceramics indicate that some activity may have taken place during the Formative Period.

No cultural resources were encountered at any of the 69 building plots. Most plots have buildings on them and were disturbed by past grading and bulldozing.

## 2.8 SOCIOECONOMICS

Davis-Monthan AFB began in 1919 when the City of Tucson established its first municipal airport. In 1927 this airport was rebuilt using guidelines provided by the Army and Charles Lindbergh dedicated this new airport called Davis-Monthan Field. The base was named after two Air Corps officers who died in the infancy of flight: Lieutenants Samuel H. Davis and Oscar Monthan (Davis-Monthan Air Force Base, 1989).

The 1988 projected population of Pima County is 685,300 with the almost 60 percent of the population (412,590) residing within the Tucson city limits (Arizona Department of Economic Security, Population Statistics Unit, 1988). Davis-Monthan AFB has approximately 7,000 military personnel, 2,800 who reside on base and 4,200 residing off base (G. Patriarca, personal communication, 1989). Pima County had a labor force in 1987 of 311,900, with an average unemployment rate of 5.1 percent (Arizona Department of Economic Security, Research and Analysis Section). Davis-Monthan AFB has contributes approximately 7,000 military and civilian individuals contributing to the employment figures, 2 percent of the total workforce in the county (U.S. Dept. of Defense, 1987).

Total salaries and wages for Pima County in 1987 totaled \$4,429,542,000 (Arizona Department of Economic Security, Unemployment Compensation Administration). The Defense Department accounted for \$175,333,000 of the wages during that same time period (U.S. Dept. of Commerce, 1988). This is approximately 4 percent of the total.

In 1980, Pima County had a total of 218,609 housing units with an occupancy rate of 89 percent and a median value of \$58,200.

## 2.9 PUBLIC SAFETY

The Davis-Monthan AICUZ report (D-M, 1975), examines and evaluates the effects of accidents in order to develop planning mechanisms with the objective to insure that the health, safety and welfare of the citizens surrounding the base. The land use guidelines from this report were previously presented in Section 2.1. Safety concerns result from the encroachment of high density land uses upon the base boundaries.

The base has established Accident Potential Zones (APZ) and Clear Zones based on percent of risk of aircraft accident. These zones have been established based on past aircraft accident patterns, types of aircraft, flight patterns and training exercises, and

number of flights. Because studies show that accidents cluster somewhat along the extended runway centerline, the APZs extend 15,000 feet from the runway threshold, and are divided into zones. APZ I and APZ II are 3,000 feet wide, and 5,000 and 7,000 feet in length, respectively, while the Clear Zone is 2,000 feet wide and 3,000 feet long. These zones have risk factors of 4.9 percent for APZ II, 7.9 percent for APZ I, and 39 percent for the Clear Zone. Special land use controls are in effect in these areas and generally include low density, agricultural and industrial use.

Only one accident reportedly has occurred off base. This was in 1978 and due to loss of hydraulics. The plane landed near a Junior High School and resulted in no injuries. The dominant direction of takeoffs is to the north and the dominate direction of landings is to the north. The aircraft fly over the University of Arizona at approximately 1,200 feet.

In June 1989 there were 6,551 landings and takeoffs combined which is an annual equivalent of 78,612 operations. The A-10 represents 64.9 percent, the OV-10 represents 8.9 percent, and the C-130 represents 5.2 percent of all operations for June 1989 for a total of 79 percent of all operations. The remaining aircraft types make up 21 percent of these operations.

Aircraft flight control communication is maintained on a continuous basis with Tucson International Airport. Both facilities view each others aircraft on tower controls within a 10-mile radius and have bright radar scopes for 40-mile radii. "Hot" telephone lines are linked between the two towers.

## SECTION 3 - ENVIRONMENTAL EFFECTS AND MITIGATIONS

### 3.1 LAND USE

#### 3.1.1 Impacts

The proposed realignment poses no significant impacts to the surrounding land use.

#### 3.1.2 Mitigations

No mitigation measures specific to the proposed action are required.

General land use recommendations include the following. As the growth of Tucson continues, the base continue to work with the various agencies in developing compatible land use plans. It is recommended that the base should attempt to work more closely with the state in developing a "truth in sales" law. This would benefit potential homeowners from being impacted by Davis-Monthan AFB activities. Also, by working with the state, improved communications could help to insure that when state urban trust lands are developed the land use would be compatible to the base's land use.

### 3.2 NOISE

#### 3.2.1 Impacts

The Operations Model for the A-10 and OV-10 was developed by assuming the operations per based aircraft remain the same. The modified operations, based on restructuring of the data presented in Section 2.2 (Table 2.2-1), are given in Table 3.2-1.

The operations are reduced by 5.2 operations per day. Operations by runway and time of day will remain approximately the same as present.

The noise analysis is based on a single point 1,000 feet from the end of the runway. At this point, all aircraft are in a single flight pattern, although, not all aircraft are at identical altitudes. Altitude profiles were based on data on file at David-Monthan AFB. No data exists for the OV-10, so the profile was assumed to be the same as the A-10. Distribution by day and night periods and by runway was based on data on file at Davis-Monthan. There was no data for the OV-10, so the calculations are based on the A-10 information. The resulting noise levels are presented in Table 3.2-2.

Table 3.2-1

DAILY OPERATIONS BY AIRCRAFT TYPE AFTER REALIGNMENT ACTION

<u>Aircraft Type</u>	<u>Percentage</u>	<u>Number per Day</u>
A-10	57.4	118.4
OV-10	18.3	37.5
C-130	0	0
All Others	24.3	50.2
<b>TOTAL</b>	<b>100.0</b>	<b>206.1</b>

Table 3.2-2

Ldn LEVELS 1,000 FEET FROM THE END OF THE RUNWAY

<u>Location</u>	<u>Existing Ldn</u>	<u>Realigned Ldn</u>	<u>Change</u>
North Runway	72.1	71.5	-0.6
South Runway	75.2	74.6	-0.6

There will be a 0.6 Ldn decrease in the noise level at the reference point. Further from the base, the absolute noise levels will be less, but the relative difference will show a decrease in every individual track. At the calculation point, the AICUZ Map shows a total aircraft noise level of about 85 Ldn. The decrease in total noise levels is less than 0.1 Ldn.

The realignment will result in a small decrease in the aircraft noise levels at Davis-Monthan AFB. There will be no significant impact.

### 3.2.2 Mitigations

No impacts will occur, thus no mitigation measures are required.

## 3.3 AIR QUALITY

### 3.3.1 Impacts

Ambient air quality impacts from the proposed relocation actions will depend on the change in air pollutant emissions engendered by the proposal. There will be changes in the number of flight operations, ground support activity, and most importantly, in the number of personnel assigned to Davis-Monthan. Except in the immediate vicinity of the runway and flight support operations, air quality measurements at various air force bases has shown that vehicular traffic is a more dominant factor in any local air quality exposure. Those same measurements have also shown that the emissions density (pollution per unit area) is also normally low except near the flightline because of the considerable open space that is found around airfields. The reduction in the number of personnel with fewer cars driving around Tucson thus most likely will create a small incremental improvement in air quality rather than any potentially adverse air quality effects associated with changes in light operations.

Mobile source emissions changes will result not only from fewer cars, from relocated personnel, but also from relocated dependents and from any displaced jobs, goods and services that this population brought to the Tucson area. There will not be a net reduction in Tucson population from the base manning reduction as on-going area growth more than compensates from the loss, but there will be a short-term reduction in the rate of population, housing and employment and land use growth from the proposed action. The temporary reduction in the rate of these economic indicators will lead to a short-term decrease in the rate of auto emissions growth. That temporary flattening of the mobile source emissions growth rate may not create much of an air quality effect on a regional scale.

In order to quantify the mobile source implications of base manning reduction, it was assumed that the net loss of



832 personnel results in a reduction of 3328 daily vehicle trips (4 trips per day per person). For an average daily trip length of perhaps 6 miles per trip (longer commuting trips and shorter work-related or errand trips), the direct vehicle-mile-traveled reduction from manpower reduction is 20,000 daily VMT. When travel by dependent members of a household and secondary regional employment supported by primary wage earners is taken into account, the indirect VMT reduction may be considerably more substantial. When the direct 20,000 VMT reduction is combined with vehicle emissions data prepared by the Pima Association of Governments (PAG), the emissions reduction benefit from manpower relocation is seen in Table 3.3-1. Table 3.3-1 shows that the proposed relocation action creates a small, but not completely negligible air quality benefit. The net direct VMT reduction benefit is between 0.1 and 0.2 percent of the three main automotive pollutants.

Aircraft emissions from the relocation action were calculated using a U.S. Air Force compilation of emissions data coupled with changes in daily operations resulting from redeployment of several units. The proposed action will decrease daily Davis-Monthan AFB flight activities from A-10's by 9 landing and takeoff cycles (LTO's), increase OV-10 flights by 9 LTO's per day, and decrease C-130 flights by 3 LTO's per day. Table 2.3-2 shows that the OV-10 is a much "cleaner" aircraft than the A-10 in most pollution categories, and that the 4-engine C-130 also has substantial emissions per LTO cycle. Table 2.3-2 shows a net daily air pollution reduction of 30 pounds per day of nitrogen oxides (NOx), almost 200 pounds of hydrocarbons (HC) and 460 pounds of carbon monoxide (CO). As with the traffic sources, the project constitutes a small regional air quality benefit to the Tucson airshed.

### 3.3.2 Mitigations

No mitigation is indicated because project implementation creates a net air quality benefit. Minor emissions increase may result from any construction activities to refit existing buildings for new tenants, but no new construction is planned that would create significant amounts of dust, fumes, or other emissions. No air quality impact mitigation is necessary because there are no impacts.

## 3.4 GEOLOGY/SEISMICITY

### 3.4.1 Impacts

Implementation of the proposed project will not require the construction of new facilities such as buildings, runways or parking areas. Therefore, no impacts on geologic resources will occur from realignment of forces at Davis-Monthan.

Table 3.3-1

RELOCATION ACTION MOBILE SOURCE POLLUTION REDUCTION  
(tons/day)

	<u>CO</u>	<u>HC</u>	<u>NOx</u>
Project-Related Reduction	0.26	0.03	0.05
Estimated Regional Vehicular Pollutant Burden	225.	18.	36.
Relocation Action Direct Mobile Source Benefit	0.12%	0.17%	0.14%

Source: PAG, Regional Transportation Plan -- Air Quality  
Assessment, 1987.

Table 3.3-2

AIRCRAFT EMISSIONS CHANGES  
FROM PROPOSED DAVIS-MONTHAN AFB UNIT RELOCATIONS

	<u>CO</u>	<u>HC</u>	<u>NOx</u>
EMISSIONS LTO/CYCLE (POUNDS)			
A-10A	43.3	13.7	3.7
OV-10A	9.7	3.0	3.9
EC-130H	52.2	33.8	10.5
DAILY EMISSIONS CHANGES (POUNDS)			
A-10A (-9 LTO's)	-390.	-123.	-33.
OV-10 (+9 LTO's)	+ 87.	+ 27.	+35.
EC-130H (-3 LTO's)	-157.	-101.	-32.
Net Change	-460.	-197.	-30.

Source: Aircraft Engine Emissions Estimator, ESL-TR-85-14  
Tyndall AFB, 1985.

### 3.4.2 Mitigations

No mitigation is necessary.

## 3.5 HYDROLOGY/WATER RESOURCES

### 3.5.1 Impacts

Implementation of the proposed realignment will not result in any new major construction. Additionally, the small reduction in personnel will actually slightly reduce water consumption in the Tucson Basin. Groundwater and surface water resources will not be affected by the proposed project. No impacts will occur.

### 3.5.2 Mitigations

No impacts will occur, thus no mitigation is necessary.

## 3.6 BIOLOGY

### 3.6.1 Impacts

Impacts to biological resources could occur from construction activity. Since construction activity will be limited basically to refurbishing existing structures and restricted to already developed areas, no impact to vegetation or wildlife or to threatened/endangered or candidate species will occur.

### 3.6.2 Mitigations

No mitigation measures are necessary.

## 3.7 CULTURAL RESOURCES

### 3.7.1 Impacts

No impacts to historic or prehistoric resources are anticipated since only no major construction is anticipated and since any minor construction will occur in areas containing no cultural resources.

### 3.7.2 Mitigations

No mitigation measures are necessary.

### 3.8 SOCIOECONOMICS

#### 3.8.1 Impacts

The proposed realignment will involve the reduction of 1,058 people and the addition of 226 for a potential overall reduction of 832 people. It is not known exactly how many of these 832 people are civilians and whether they will be able to be absorbed into new or other existing employment on the base. The socioeconomic impacts are based on the premise that 832 base personnel will be lost. This is a 12 percent reduction in base personnel. While this represents a significant impact to the base, it would not be significant to the City of Tucson workforce because the Davis-Monthan's workforce is only 2 percent of the total Tucson workforce.

The secondary job market created by the base has been computed to be a total of 2,922 within a 50-mile commuting radius (Economic Resource Impact Statement, 1988). A reduction of 12 percent would involve a loss of 361 jobs (if the ratio were to stay the same). This figure plus the 832 base personnel would equal a total of 1,193 jobs lost, this is only 0.4 percent of the total workforce (311,900) in Pima County. This figure is not considered significant.

Based on a figure of 60 percent base personnel living off base, approximately 500 housing units would become vacant with the proposed realignment. This is less than 0.3 percent of the total housing units, therefore, not a significant impact to the area.

#### 3.8.2 Mitigations

No significant impacts will result from the proposed realignment, thus no mitigation measures are required.

### 3.9 PUBLIC SAFETY

#### 3.9.1 Impacts

The realignment of aircraft will result in a decrease in the total number of flights that will be flown over the area for the subject aircraft. These numbers were presented in Section 3.2, Noise. Because there is a decrease in flights, a corresponding decrease in accident potential will also result. No impacts are anticipated from the proposed action.

#### 3.9.2 Mitigations

No impacts were identified, thus, no mitigation measures are necessary.

## SECTION 4 - COMPLIANCE WITH APPLICABLE ENVIRONMENTAL REQUIREMENTS

### 4.1 NATIONAL ENVIRONMENTAL POLICY ACT

This EA has been prepared in accordance with NEPA requirements. Feasible alternatives were considered during the evaluation process. These alternatives included consideration of No Action or no realignment of forces; and the retention of the 41 ECS and the addition of the 27 TASS, both of which were inconsistent with the Congressional Mandate of base realignments. In addition, the alternative use of other facilities at Davis-Monthan for the 27 TASS was also considered. This alternative would result in the requirement for new construction or would result in inefficient use of existing facilities and was determined to be unfeasible.

### 4.2 CLEAN WATER ACT, AS AMENDED

Potential significant impacts affecting water resources of the United States, as defined under the Clean Water Act, have been considered in the EA. The proposed project does not entail discharge of dredged or fill material into waters of the United States. There will be no construction or related development activities, therefore, impacts to water quality will not occur. There are no Clean Water Act concerns associated with the proposed project.

### 4.3 CLEAN AIR ACT, AS AMENDED

The Pima County Air Quality Control District is the agency responsible for enforcement of Clean Air Act regulations and other local regulations. The proposed realignment action has been reviewed and is determined to be in compliance with the regulations. There will be no construction or related development activities, therefore, impacts to air quality will not occur.

### 4.4 NATIONAL HISTORIC PRESERVATION ACT

Based on the previous literature review and cultural resources Class II survey performed on the base in 1988 by the Corps of Engineers (Altschul, 1988), no sites are identified in areas proposed for realignment activity. This previous report was prepared in accordance with not only NHPA but also the State Historic Preservation Office.

#### **4.5 ENDANGERED SPECIES ACT**

The Arizona Game and Fish Commission has jurisdiction for actions involved threatened and endangered species. All proposed actions involved in the base realignment are on existing developed areas. No construction activity is involved. No impacts will occur to any listed, threatened or endangered species.

#### **4.6 STATE AND LOCAL POLICIES AND LAWS**

The project complies with state and local laws and regulations.

## SECTION 5 - SUMMARY OF COORDINATION

A meeting was held between Chambers Group personnel and personnel in the Environmental Section at Davis-Monthan AFB on July 27, 1989. Base personnel included John Thompson, Chief of the Environmental Quality Branch and Geno Patriarca, Community Planner. Background data was obtained on the base, base operations and on the proposed aircraft relocation operation. Existing environmental documents were obtained as well as maps and other support materials. A meeting was also held with Sargent Henderson of the 602nd squadron who has responsibility for the 23 TASS (OA-10 aircraft) and the 27 TASS (OV-10A aircraft). Clarification was given to flight patterns and training routines.

Following this meeting, continued contact was maintained with Mr. Thompson and Mr. Patriarca for clarification of material presented within this document.

Telephone conversations with Captain Wilfred Cassidy at the Headquarters Tactical Air Command in Langely, Virginia have also occurred throughout the course of preparation of this document. He has provided us with clarification and guidance on sources for AICUZ information.



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SECTION 7 - LIST OF PREPARERS

<u>Name</u>	<u>Title</u>
John F. Westermeier	Vice President/Coordination Biology/Geology/Hydrology/ Cultural Resources
Linda Brody	Project Manager/Public Safety/Land Use/ Socioeconomics
Diane Valentine	Land Use/Socioeconomics
Gordon Bricken	Noise Specialist
Hans Giroux	Air Quality Specialist

**APPENDIX A**

**DAVIS-MONTHAN AIR FORCE BASE - LAND USE POLICIES**

APPENDIX A  
DAVIS-MONTHAN AIR FORCE BASE - LAND USE POLICIES

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## APPENDIX A

### DAVIS-MONTHAN AIR FORCE BASE - LAND USE POLICIES

#### EXECUTIVE SUMMARY

##### URBAN LANDS MANAGEMENT ACT

The Urban Lands Management Act (HB 2001), provides a new framework for the State Land Department to achieve its primary responsibility of maximizing revenues to the Trust.

Within this framework, the Act provides an outline of steps to involve the local jurisdictions and the general public in the planning of State Trust lands and defines disposition alternatives for implementing approved development plans. One such disposition alternative presented in the Act is the extension of the maximum term for commercial leases from 50 years up to 65 years.

There are three basic processes through which State lands may be classified, planned, and developed. These are: the Standard Urban Lands Process, the Expedited Urban Lands Process, and the Self-Contained Community Site Planning Process.

The Standard Urban Lands Process is initiated by a request to the Commissioner to classify as urban lands, specific State lands which meet the definition stated in the Act. Lands classified as urban lands may then be designated by the Commissioner as urban lands under consideration as suitable for urban planning. A public hearing is held prior to this designation. A general plan is prepared by the state Land Department staff or through a consultant contract for the designated lands and a public hearing is held prior to approval of this plan. Lands included in an approved general plan may then be designated as suitable for a development plan which may be prepared through a planning contract to the lowest and best bidder or may be submitted to the Department through a planning permit. Prior to approving the proposed development plan, a public hearing is held and a 100 year water supply must be certified for the subject lands by the State of Arizona Department of Water Resources. Any rezoning must be completed by the local jurisdiction within the time provided in the Act. Upon approval of the development plan, the existing lessee is compensated and the Board of Appeals determines whether the lands should be leased or sold in order to implement the development plan.

The Expedited Urban Lands Process differs from the Standard Process in two basic points: One, the general plan preparation may be waived for urban lands which are already included in an approved general plan, and two, any necessary rezoning is completed by the local jurisdiction as expeditiously as possible.

The Self-Contained Community Site Planning Process is initiated by an application to the Commissioner to classify specific lands as under consideration as suitable for self-contained community site planning. A public hearing is held to consider lands as suitable for self-contained community site planning and to receive and consider applications for a master planning contract for the subject lands. The classifications may be made and a master planning contract may be granted. Another public hearing is held prior to approving the proposed master plan. The Board of Appeals decides whether to lease or sell the lands in order to implement the approved master plan.

Trust lands being processed under the Urban Lands Management Act are leased or sold at public auction to the highest and best bidder. If the party who prepared the approved development plan or master plan is not the highest and best bidder at auction, then he/she is compensated for planning costs by the successful bidder.

The Act has built-in assurances for implementing the approved development plans when Trust lands are finally leased or sold. For lands that are sold, the certificate of purchase or patent will require the purchaser to honor any covenants and restrictions necessary to implement the development plan. For lands that are leased, the provisions of the approved development plan will be incorporated into the lease.



## SPECIFIC NEIGHBORHOOD PLANS

The Julia Keen Neighborhood Plan proposes "industrial zoning in the vicinity of 34th Street and Alvernon Way should be expanded to permit a better use of the land since it is at the end of Davis-Monthan AFB runway. A buffer area should be retained to protect the school and single-family development" (City of Tucson General Plan, 1989; 11).

The Groves Neighborhood Plan states that with the eventual development of state lands "landscapes/ screening should be provided between Davis-Monthan airplane storage and the residential development" and "orientation of homes should be away from Davis-Monthan AFB, i.e., fronting of the homes should be along internal streets" (City of Tucson General Plan, 1989; 116).

The Esmond Station Area Plan is affected by the noise contours (see Figure A-1) but appears to have no stated change in land use for the area, which is for the most part Rita Ranch (Figure A-2). There are no proposed public facilities (Figure A-3).

The Arroyo Chico Area Plan Draft has three policies and several implementation techniques regarding Davis-Monthan AFB. These are as follows (City of Tucson, Department of Planning, 1985).

### DAVIS-MONTHAN AIR FORCE BASE

The Davis-Monthan Force Base (DMAFB) is located adjacent to the Arroyo Chico Plan area, east of Alvernon Way. The continued compatibility of defense and training activities with surrounding uses has become an increasing concern as the growth of the metropolitan area extends around the base.

Land use compatibility is guided by noise level considerations and aircraft accident potential. These factors are reflected in the "Air Installation Compatible Use Zone" (AICUZ) concept, developed by the United State Air Force. This concept delineates the boundary between the Ldn 65-70 and Ldn 70+ areas in the AICUZ.

It is generally recognized that noise sensitive uses, such as residences and schools, are inappropriate in the Ldn 70+ area. Noise sensitive uses may be appropriate in areas with noise levels ranging from Ldn 65 to Ldn 70, if acoustical treatment reduces interior noise levels to Ldn 45. These general land use principles, however, are difficult to apply to the Arroyo Chico area, since most of the land within the AICUZ is already built up with established single family neighborhoods.

Two areas within the AICUZ have been identified. Area 1 includes noise levels ranging from Ldn 65 to Ldn 80 and is within the first Aircraft Accident Potential Zone form the base.

AICUZ recommendations primarily suggest industrial or heavy business uses for this area. Although most of Area 1 is developed and/or zoned for industrial uses, portions of the Keen Elementary School site and the Julia Keen Neighborhood are located here.

Area 2 includes noise levels ranging from Ldn 65 to Ldn 75 and experiences a reduced accident potential. Noise tolerant uses which do not involve concentrations of employees or patrons are generally considered appropriate in Area 2, if acoustical treatment is utilized to reduce noise levels.

Although the portion of the Arroyo Chico area which is located in the AICUZ is largely built up, new and redeveloped uses should incorporate the following policies to address noise considerations without introducing incompatible uses into established neighborhoods.

#### Sub-Goal

Encourage land use compatibility between the Air Base and adjacent development.

#### Policies

1. Ensure compatibility of new development with existing and future operations of Davis-Monthan Air Force Base.

#### Implementation Techniques

- A. Rezoning requests should be reviewed on a case-by-case basis with regard to current and future base operations.
- B. Request Davis-Monthan Air Force Base Community Planning staff to review proposed development plans for the Arroyo Chico area.
- C. Request a "Fair Disclosure Statement" be part of any development plans, informational brochures, and sale/rental agreements, indicating that certain types of military air and ground training activities occur at Davis-Monthan.
- D. Prohibit development which would create a hazard to aircraft, including uses which interfere with navigation aids, produce smoke emissions or excessive

illumination, allow petroleum storage or explosives manufacture, or attract birds or other hazards to aircraft.

2. Ensure compatibility of base operations with existing and potential adjacent development.

A. Request Davis-Monthan Air Force Base Community Planning to review plans regarding future expansion or changes for compatibility with off-base development.

B. Encourage Davis-Monthan Air Force Base to screen existing and proposed non-compatible uses from adjacent developments.

3. Encourage new development to be consistent with Air Installation Compatible Use Zone (AICUZ) guidelines and Arroyo Chico Area Plan general policies.

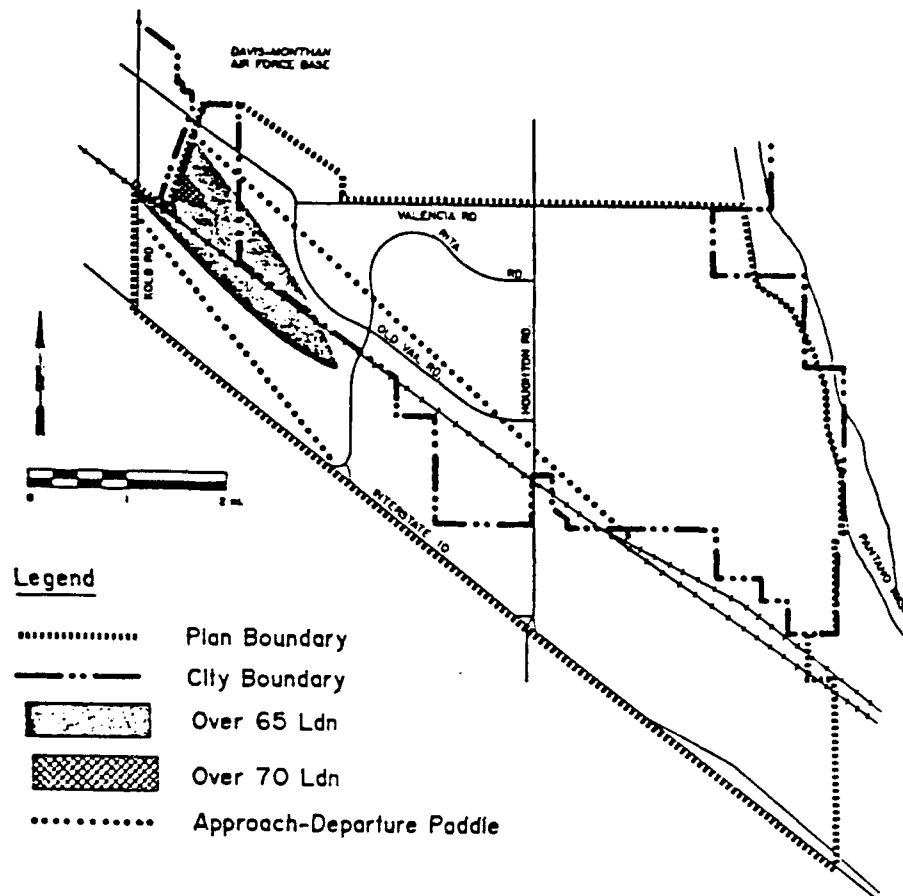
A. Encourage new development of residential and other noise sensitive uses to incorporate acoustical treatment measures which will reduce interior noise levels to a maximum of 45 Ldn. (See Noise Sensitive Uses definition.)

B. Encourage acoustical treatment during redevelopment of structures containing noise sensitive uses, when the renovation will cost 50 percent or more of the value of the original structure at the time renovation is to begin.

C. Selected industrial, warehouse, and wholesale uses are appropriate in Area 1, when consistent with other Arroyo Chico Area Plan general policies (see Figure A-4).

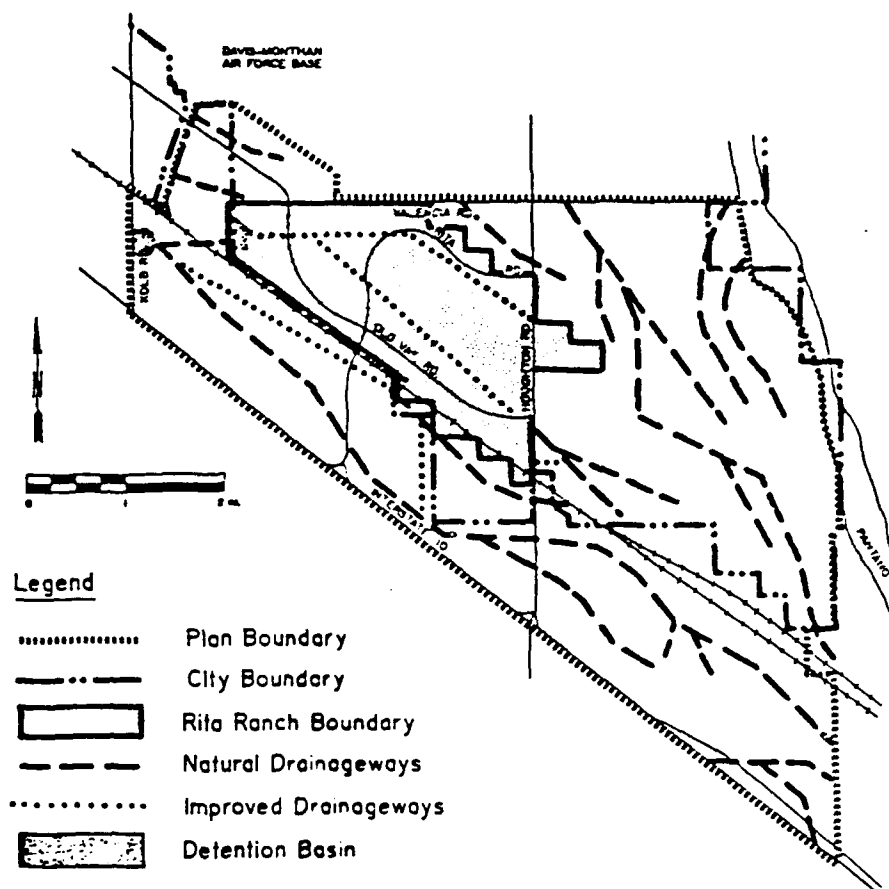
D. Protect existing neighborhoods from the intrusion of uses which meet AICUZ guidelines but are incompatible in intensity with surrounding development.

FIGURE A-1  
DAVIS-MONTHAN IMPACTS



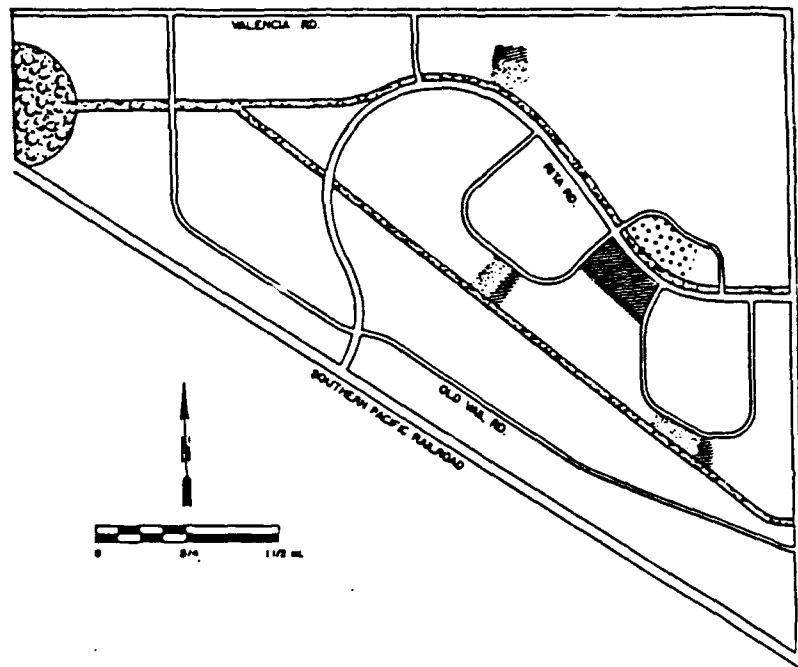
Source: ESMOND STATION AREA PLAN 1-69

**FIGURE A-2**  
**DRAINAGE**







Source: ESMOND STATION AREA PLAN 1-89

FIGURE A-3  
PROPOSED PUBLIC FACILITY SITES



LEGEND

-  ELEMENTARY SCHOOL
-  JUNIOR OR SENIOR HIGH SCHOOL
-  PARK/PUBLIC FACILITIES
-  DRAINAGE FACILITIES

Source: ESMOND STATION AREA PLAN L-89

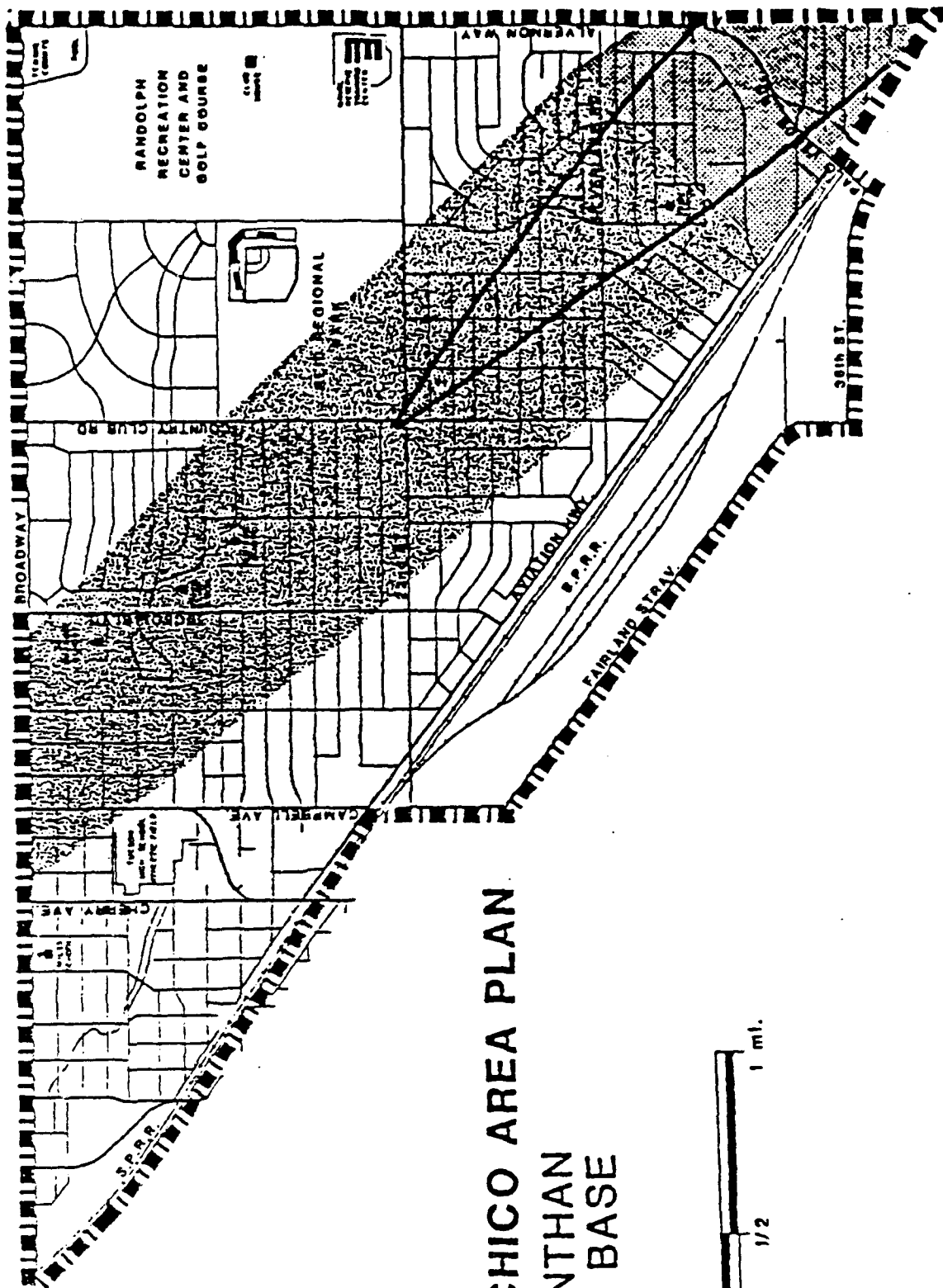


FIGURE A-4  
**ARROYO CHICO AREA PLAN**  
**DAVIS-MONTHAN**  
**AIR FORCE BASE**



**Legend**

- AREA 1
- AREA 2
- Ldn 70